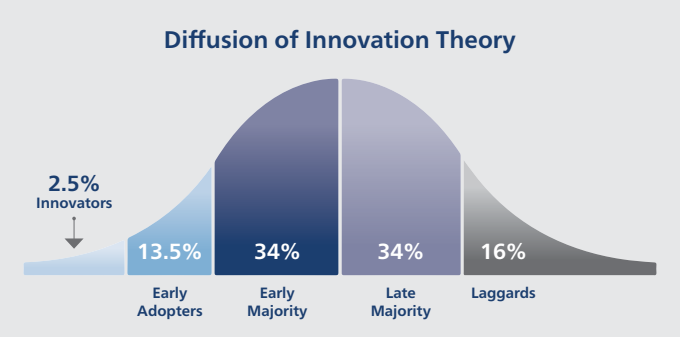
Believers, Innovators and the Passion to Deliver

While networking on LinkedIn recently, I came across a job title in the dental industry that I really liked: *Technology Leader and Digital Evangelist.* It seemed different, more open and more exciting than *CAD/CAM Support Leader.* A few more searches for *evangelist* demonstrated that others are using this in job titles with my favorite being a role at Google described as *Chief Innovation Evangelist.*

Diffusion of Innovation

The description of these roles triggered thoughts around the Diffusion of Innovation Theory which seeks to explain how, why, and at what rate new ideas and technology spread and are adopted.[1] In the theory, the categories of those who adopt new ideas are described as Innovators, Early Adopters, Early Majority, Late Majority, and Laggards.



The theory provides an informed view on how the population breaks down, with a small percentage of innovators and a considerable amount of Laggards. Spending a little more time searching suggested that this population distribution might not be accurate, as the majority of individuals and companies describe themselves as Innovators and zero who described themselves as Laggards. It made me think about how I would describe Invibio and the medical device industry.

Let's start with the medical device industry and more specifically Orthopedics. One of the first observations would be that the vast majority of new medical devices that are brought to market are substantially equivalent to those already on the market. There are very good reasons for this in terms of risk management and innovation costs. Often the financial and personal risk for device companies and surgeons to innovate, respectively, is far more than the risk of continuing with what is already available.

It is also true that the vast majority of new medical devices that come onto the market have little to no clinical data when launched and therefore, the diffusion of innovation or adoption is understandably slow. Many of the small medical device companies face challenges in delivering robust clinical evidence and therefore, these innovations are embraced only by the Innovators and Early Adopters, as, the risks for the Early Majority remain too high with the absence of clinical evidence studies.

It would therefore seem fair to assume that diffusing innovation within the medical device industry is a difficult challenge. These challenges can however, lead to a vast array of undifferentiated or *me-too* product offerings in the market followed by an inevitable pressure on price. So innovation may be difficult, but we are now in an environment where avoiding it also has consequences.

The Challenges of Innovation

The innovation challenge is recognized within Invibio as we drive new PEEK-OPTIMA™ polymer solutions and technologies in therapeutic areas that have well established metal alternatives.

However, prior to entering these new markets we start by asking ourselves two really simple questions:

1. Is there a significant clinical problem to solve? (i.e. Are patients or surgeons really unhappy with the outcomes following surgery?)
2. Is there a significant economic challenge that we think we can address? (i.e. Can similar outcomes be delivered at lower overall cost?)

Without truly believing these factors can be addressed it's hard to imagine medical device manufacturers having the resilience to keep driving innovation in the marketplace. That's why when we are asked, "why innovate in total knee replacement, given that survivorship levels have been demonstrated to be up to 99% at 10 years,[2]" we discuss the role materials may have in improving patient satisfaction levels. It also helps us to explain our focus on Trauma, where recent studies measured the complication rate at over 11% for the studied population, demonstrating a wide variance in the cost of the complications.[3] Clearly, a significant amount of time and resources are required to prove our solutions can address these issues.

In This Issue

We hope this edition of the Invibio Insider, provides insight as to how we are innovating in our own business for Trauma, Spine, Dental, Orthopedics and Craniomaxillofacial (CMF). Additionally, we will look at the interest arising from innovation in 3D printed titanium cages. Although the clinical and economic evidence for

the benefits from these devices has yet to be reported, it's becoming a growing trend. Therefore, we will explore innovation for additive manufacturing of implantable PEEK devices. Finally, as you read these articles, I hope you will think what your future role might be in implementing innovation.

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